REMARKS

In the Office Action, claims 4 and 5 were rejected under 35 U.S.C. §103. Claim 3 was previously withdrawn due to a restriction requirement. Applicant believes that the rejections are improper for at least the reasons listed below.

In the Office Action, claims 4 and 5 are rejected under 35 U.S.C. §103 in view of U.S. U.S. Patent No. 6,428,218 to Müssig ("Müssig") and U.S. Patent No. 5,570,446 to Zheng et al. ("Zheng"). The Patent Office relies primarily on Müssig, and thus further relies on Zheng to remedy the deficiencies of Müssig.

Of the claims at issue, claim 4 is the sole independent claim. Claim 4 recites a method for fusion splicing of an optical fiber using an optical fiber fusion splicer, wherein the optical fiber fusion splicer includes a setting means for setting respective end surfaces of two optical fibers that are to be spliced in order to abut against each other, a heating means for generating an arc discharge between two discharge electrodes and heating an abutment portion of said optical fibers using a discharge beam, and an image pickup means for picking up an image of said discharge beam. The method includes: (a) measuring, from image signals obtained by the image pickup means when a preliminary arc discharge is generated between said discharge electrodes when no optical fibers have been placed in a discharge area, brightness distributions on a plurality of lines that are set at different positions along a rectilinear direction between said discharge electrodes and run in a direction substantially at right angles to the rectilinear direction; (b) estimating a heating center of the arc discharge from the plurality of brightness distributions; (c) controlling said setting means such that the abutment portion of said two optical fibers is positioned in the heating center; and thereafter (d) controlling said heating means such that a main arc discharge is generated and said abutment portion is heated by said discharge beam.

Applicant respectfully submits that Müssig is distinguishable for a number of reasons. First, Müssig does not disclose, teach or suggest measuring, from image signals obtained by the image pickup means when a preliminary arc discharge is generated between said discharge electrodes when no optical fibers have been placed in a discharge area, brightness distributions on a plurality of lines that are set at different positions along a rectilinear direction between said discharge electrodes and run in a direction substantially at right angles to the rectilinear

direction, as even pointed out by the Examiner. See, Office Action, pg. 3. Second, Müssig does not disclose or suggest estimating a heating center of an arc discharge from the plurality of brightness distributions, where the brightness distributions are measured as described above. Third, Müssig does not disclose or suggest positioning an abutment portion of two optical fibers in this heating center by controlling a setting means for setting respective end surfaces of the two optical fibers, where the heating center is obtained as described above. Accordingly, Müssig does not disclose, teach or suggest the elements of claims 4 or 5. In addition, Zheng does not cure the deficiencies of Müssig, as discussed above.

Zheng is directed to a method of alignment and control for fusion splicing two ends of optical fibers. In Zheng, the optical fibers (1, 1') which are provided at the heating position are illuminated by light beams from two directions which are perpendicular to each other and also perpendicular to the longitudinal direction of the optical fibers. The positions of the optical fibers are corrected based on images of the optical fibers which are illuminated by the light beam. Following the positioning step, a preliminary arc discharge and a main arc discharge are successively performed. See, Zheng, col. 5, line 22 to col. 6 line 39. However, the preliminary arc discharge in Zheng is for the purpose of removing dirt and particles from the discharge electrodes, rather than for measuring a plurality of brightness distributions as required by the claimed invention. See, col. 6, lines 27-35. Furthermore, the preliminary arc discharge in Zheng is performed after the positioning of the two optical fibers has been completed. Therefore, the positioning is not based on any measurements taken from the preliminary arc discharge. Accordingly, Zheng does not disclose (a) measuring, from image signals obtained by the image pickup means when a preliminary arc discharge is generated between said discharge electrodes when no optical fibers have been placed in a discharge area, brightness distributions on a plurality of lines that are set at different positions along a rectilinear direction between said discharge electrodes and run in a direction substantially at right angles to the rectilinear direction; (b) estimating a heating center of the arc discharge from the plurality of brightness distributions; (c) controlling said setting means such that the abutment portion of said two optical fibers is positioned in the heating center. Therefore, Müssig and Zheng, even if properly combinable, do teach, disclose or suggest the elements of claim 4.

Accordingly, for at least the reasons set forth above, claim 4 and claim 5 that depends

therefrom, are each patentably distinguished over the combination of Müssig and Zheng and are in condition for allowance.

Accordingly, Applicant respectfully submits that the present application is in condition for allowance and respectfully solicits allowance of same.

Respectfully submitted,

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